

# Get Your Task On!

**Christy Doby & Jodi Hofberg**  
**Alamance-Burlington School System**

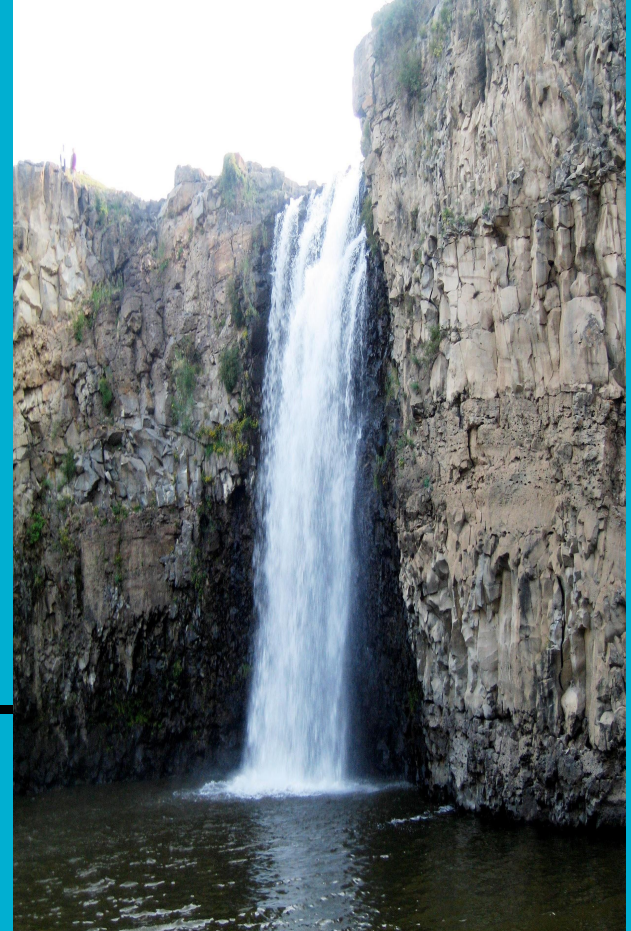
**Let's Get Started...**

Who's in  
the Room?



# Flow of the Session

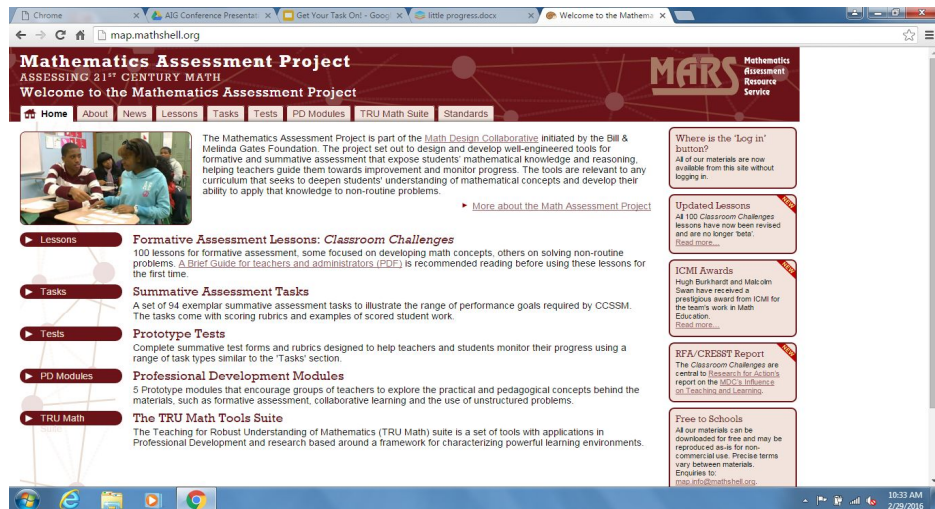
- ☐ Math Design Collaborative (MDC) Overview
- ☐ Math Assessment Project
- ☐ Finding and Selecting Rigorous Math Tasks
- ☐ Experiencing a Task
- ☐ Reflection



# Math Design Collaborative

Formative Assessment  
Lessons  
Identifying  
Misconceptions  
Feedback Questions  
Resources for Teachers

## Math Assessment Project



The screenshot shows the homepage of the Mathematics Assessment Project (MAP) website. The header features the project name and a navigation menu with links to Home, About, News, Lessons, Tasks, Tests, PD Modules, TRU Math Suite, and Standards. A sidebar on the left contains a vertical menu with links to Lessons, Tasks, Tests, PD Modules, and TRU Math. The main content area is titled 'Formative Assessment Lessons: Classroom Challenges' and includes a description of the project's goals, a list of resources, and a section for 'Updated Lessons'. The website is designed with a dark red header and a light blue sidebar.

Mathematics Assessment Project  
ASSESSING 21<sup>ST</sup> CENTURY MATH  
Welcome to the Mathematics Assessment Project

Home About News Lessons Tasks Tests PD Modules TRU Math Suite Standards

The Mathematics Assessment Project is part of the [Math Design Collaborative](#) initiated by the Bill & Melinda Gates Foundation. The project set out to design and develop well-engineered tools for formative and summative assessment that expose students' mathematical knowledge and reasoning, helping teachers guide them towards improvement and monitor progress. The tools are relevant to any curriculum that seeks to deepen students' understanding of mathematical concepts and develop their ability to apply that knowledge to non-routine problems.

► [More about the Math Assessment Project](#)

**Formative Assessment Lessons: Classroom Challenges**  
100 lessons for formative assessment, some focused on developing math concepts, others on solving non-routine problems. [A Brief Guide for teachers and administrators \(PDF\)](#) is recommended reading before using these lessons for the first time.

**Summative Assessment Tasks**  
A set of 94 exemplar summative assessment tasks to illustrate the range of performance goals required by CCSSM. The tasks come with scoring rubrics and examples of scored student work.

**Prototype Tests**  
Complete summative test forms and rubrics designed to help teachers and students monitor their progress using a range of task types similar to the 'Tasks' section.

**Professional Development Modules**  
5 Prototype modules that encourage groups of teachers to explore the practical and pedagogical concepts behind the materials, such as formative assessment, collaborative learning and the use of unstructured problems.

**The TRU Math Tools Suite**  
The Teaching for Robust Understanding of Mathematics (TRU Math) suite is a set of tools with applications in Professional Development and research based around a framework for characterizing powerful learning environments.

Where is the 'Log in' button?  
All of our materials are now available from this site without logging in.

**Updated Lessons**  
All 100 Classroom Challenges lessons have now been revised and are no longer 'beta'. [Read more...](#)

**ICMI Awards**  
Hugh Burkhardt and Malcolm Swan have received a prestigious award from ICMI for the team's work in Math Education. [Read more...](#)

**BFA/CRESST Report**  
The Classroom Challenges are central to [Research for Action's Report on the ICC's Influence on Teaching and Learning](#).

**Free to Schools**  
All our materials can be downloaded for free and may be reproduced as-is for non-commercial use. Precise terms vary between materials. Enquiries to: [info@mathshell.org](mailto:info@mathshell.org).

10:33 AM  
2/29/2016

# Math Tasks

## Difficulty of a Task



1. Complexity
  2. Unfamiliarity
  3. Technical demand
  4. Student autonomy
-

# Math Tasks



## Novice and Apprentice Levels

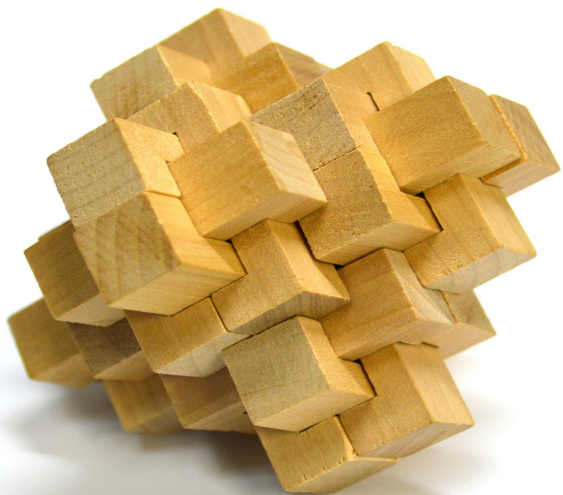
### Novice Tasks:

- Short items
- Focused on a specific concept or skill aligned to a standard
- Involve only two of the mathematical practices MP 2 & MP6
- Low level of understanding

### Apprentice Tasks:

- Substantial, often involving several aspect of mathematics
- Guided through a “ramp” of increasing challenge
- Involve MP2, MP6, MP3 & MP7
- Modest level of understanding

# Math Tasks



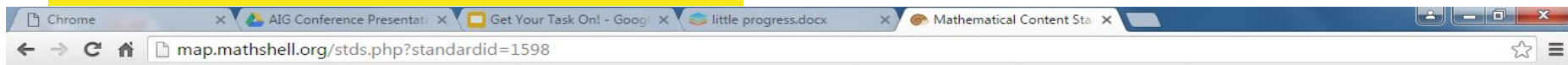
## Expert Level

### Expert Tasks

- Rich tasks, connected to the real world
  - Require the effective use of problem solving strategies, as well as concepts and skills.
  - Performance on these tasks indicates how well a person will be able to do and to use mathematics beyond the mathematics classroom.
  - Demand the full range of mathematical practices
-



# Connected to a Standard...



► *Fencing*

► *Short Tasks - Expressions and Equations*

## 7.G: Geometry

**Draw, construct, and describe geometrical figures and describe the relationships between them.**

- 1: Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.
- 2: Draw (freehand, with ruler and protractor, and with technology) geometric shapes with given conditions. Focus on constructing triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle.
- 3: Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.

► *Triangular Frameworks*

► *Photographs*

**Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.**

- 4: Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle.
- 5: Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.
- 6: Solve real-world and mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.

► *Historic Bicycle*

► *Sports Bag*

► *Circle Pattern*

► *Octagon Tile*

► *Roman Mosaic*

► *Fearless Frames*

► *Short Tasks – Geometry*

## 7.SP: Statistics and Probability



- Complete the “Roman Mosaic” task on your own.
- Switch with a partner and use the rubric to score each other’s task.

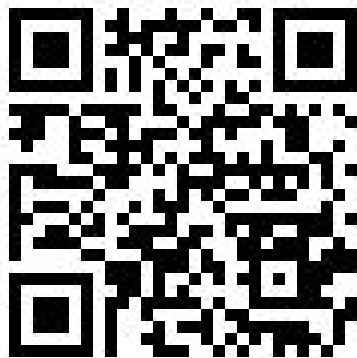


# Roman Mosaic Task

→ Circulate the room and read about the different levels of progress.

- Little Progress (Jan.–March)
- Some Progress (April–June)
- Substantial Progress (July–Sept.)
- Task Accomplished (Oct.–Dec.)

→ Determine your “level of progress” on the task.



**Reflect: Does this task meet the descriptions of a rigorous math task according to the survey given at the beginning of the session?**

**[http://padlet.com/christina\\_doby/7hzob25kydbh](http://padlet.com/christina_doby/7hzob25kydbh)**